Discussion of "Targeting price stability: Macroprudential or Monetary Policy?" by Aikman, Giese, Kapadia and McLeay

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Overview

- **The paper presents a didactic model extension of Ajello et al (2016) (ALLN)***
  - ✓ Add a credit supply channel of bank capital and credit supply shocks
  - ✓ Careful calibration for the UK
  - ✓ Optimal coordination between MP and capital-based MaPru
  - ✓ Examine further model extensions for robustness analysis
  - ✓ Do not consider "Bayesian" or "Robust" policymakers

- **Normative prescriptions:**
  - ✓ Limited scope for MP to lean against the wind (LAW): like the main case of ALLN
  - ✓ Strong Role of MaPru to prevent financial crisis

- **Two main comments:**
  - ✓ How stylized are the intertemporal trade-offs?
  - ✓ How stylized are MP and MaPru instruments?

**See Ajello, Laubach, Lopez-Salido, Nakata "Financial Stability and Optimal Interest-Rate Policy", Finance and Economics Discussion Series 2016-067*

Equilibrium dynamics

- **Aggregate Demand** $y_1 = E_1^{ps} y_2 - \sigma\left(i_1 - E_1^{ps}\pi_2 + \omega s_1\right) + \xi_1^y$

- **Aggregate Supply** $\pi_1 = E_1^{ps}\pi_2 + \kappa y_1 + \upsilon s_1 + \xi_1^\pi$

  subject to myopic expectations $E_1^{ps}\pi_2 = \pi_{2,nc}, E_1^{ps} y_2 = y_{2,nc}$

- **Credit Demand** $B_1 = \phi_0 + \phi_i i_1 + \phi_s s_1 + \xi_1^B$

- **Credit Supply** $s_1 = \psi k_1 + \xi_1^s$

- **Crisis probability** $\gamma_1 = \frac{e^{h_0 + h_B B_1 + h_k k_1}}{1 + e^{h_0 + h_B B_1 + h_k k_1}}$

- **Loss function** $\text{Loss} = L_1 + \beta\gamma_1(1+\zeta)E_1 L_{2,c} + \beta(1-\gamma_1)E_1 L_{2,nc}$
  with $L_\blacksquare = \frac{1}{2}(\pi_\blacksquare^2 + \lambda y_\blacksquare^2)$

- **Policy setting**: minimize Loss w.r.t i_1 and/or k_1

subject to (AD), (AS), (CD), (CS), (CP)

Equilibrium dynamics: Macro versus Financial stability as in ALLN (16)

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No feedback from B_1 to the macro

No direct effect of i_1 on γ_1

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Equilibrium dynamics: adding credit supply and bank capital channel

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Optimal policy setting

- **Monetary policy only**

$$\begin{cases} \sigma(\kappa\pi_1 + \lambda y_1) = \dfrac{\partial \gamma_1}{\partial i_1}\dfrac{\partial Loss}{\partial \gamma_1} \\ k_1 = \bar{k} \end{cases}$$

- **Optimal coordination**

$$\begin{cases} \sigma(\kappa\pi_1 + \lambda y_1) = \dfrac{\partial \gamma_1}{\partial i_1}\dfrac{\partial Loss}{\partial \gamma_1} \\ \lambda y_1\left(-\dfrac{\nu\psi}{\kappa}\right) = \left(\dfrac{\partial \gamma_1}{\partial k_1} + \dfrac{\partial \gamma_1}{\partial i_1}\left(\dfrac{\nu\psi}{\kappa\sigma} - \omega\psi\right)\right)\left(-\dfrac{\partial Loss}{\partial \gamma_1}\right) \end{cases}$$

- **Instrument strategic complementarities**
  - ✓ Do instruments move in the same direction?
  - ✓ Indicator of instruments relative comparative advantage

$$X = \frac{\dfrac{\partial \gamma_1}{\partial k_1}\left(\lambda\dfrac{\partial y_1}{\partial i_1} + \kappa\dfrac{\partial \pi_1}{\partial i_1}\right)}{\dfrac{\partial \gamma_1}{\partial i_1}\left(\lambda\dfrac{\partial y_1}{\partial k_1} + \kappa\dfrac{\partial \pi_1}{\partial k_1}\right)} - 1,$$

Optimal policy setting: MP leaning against the wind

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Optimal policy setting in absence of crisis probability

- **Monetary policy only** $\begin{cases} \sigma(\kappa\pi_1 + \lambda y_1) = 0 \\ k_1 = \bar{k} \end{cases}$
  - ✓ Financial frictions are irrelevant for macroeconomic stabilisation: there is no case for LAW
  - ✓ Full stabilisation of cost push and spread shocks is not achievable

- **Optimal coordination** $\begin{cases} \pi_1 = 0 \\ y_1 = 0 \end{cases}$
  - ✓ Through credit supply, capital-based MaPru is a complementary instrument to monetary policy

- **How realistic are those properties**?
  - ✓ What happens if the spread depends on interest rate or output on credit conditions?
  - ✓ How realistic is the loss function for MaPru in this case?

How stylized are the intertemporal trade-offs?

- **Is the model consistent with the "financial frictions" embodied in main stream DSGEs?**
  - ✓ In principle both spreads and excess credit would depend on monetary policy and would feedback on aggregate supply and demand
  - ✓ A welfare-based loss function would penalise credit/spread/bank capital fluctuations
  - ✓ Gourio, Kashyap and Sim (2017)[1] would be a good way to go?

- **What type of empirical counterparts for B_1 and $\gamma_1(B_1)$?**
  - ✓ Doubts on the "orthogonality" of business and financial cycles
  - ✓ Brunnemeier, Palia, Sastry and Sims (2017)[2]:

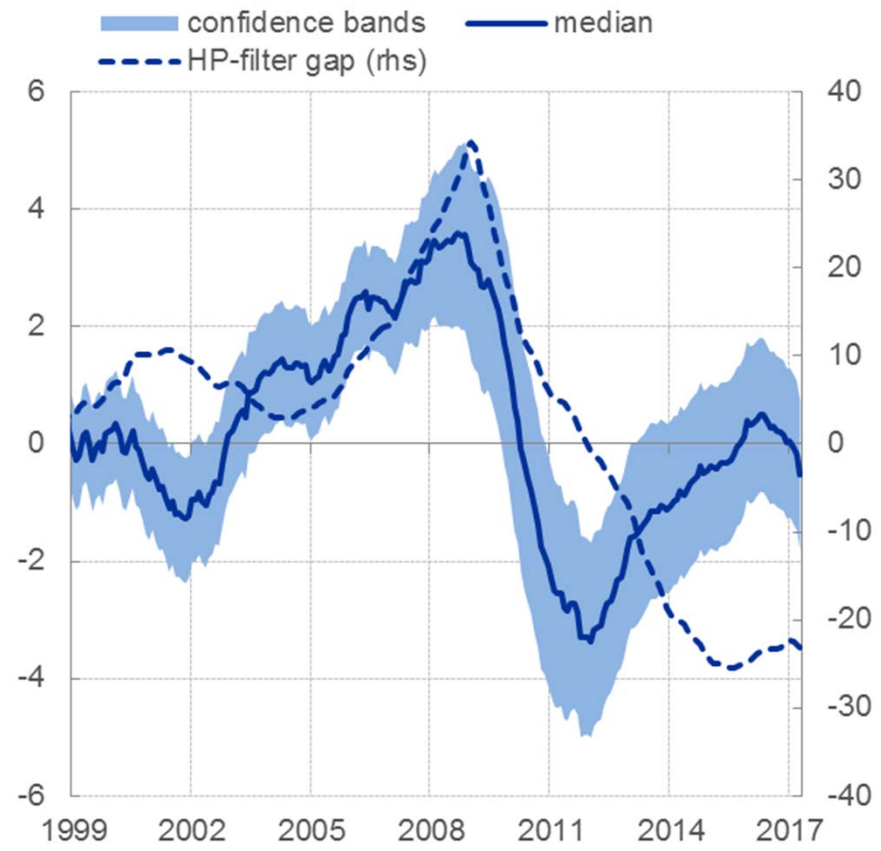
    i) Significant credit channel of monetary policy

    ii) The causal link between credit growth and recessions crucially hinges on monetary policy conduct

1 Gourio, Hashyap, Sim (2017) "The Tradeoffs in Leaning Against the Wind", mimeo
2 Brunnemeier, Palia, Sastry and Sims (2017) "Feedbacks: Financial Markets and Economic Activity", mimeo

Main properties of a macro-based loan indicator

Loan indicator – Euro area
(percentages)



Source: ECB calculations. The loan indicator signals departures of NFC loan levels from those explained by historical regularities. It is computed as the log-deviation of observed loan levels from those forecasted conditionally on the actual developments in real GDP (Afanasyeva, Darracq Paries and Falagiarda, 2017). Latest observation: June 2017.

- A macro-based indicator…
  - ➢ computed by means of a multivariate analysis, detecting departures of loan levels from those explained by historical regularities (or justified by macroeconomic fundamentals). It overcomes the well-known shortcomings of the standard HP-filter indicator
  - ➢ detects the build-up of excess credit before the HP-filter indicator
  - ➢ identifies negative gaps without the persistence displayed by the HP-filter gap
  - ➢ tends to peak before the HP-filter indicator (and in many cases even before the onset of the crisis)

How stylized are MP and MaPru instruments?

- **Pushing the case for MaPru interventions**
  - ✓ Wide range of Macroprudential instruments (MPIs)
  - ✓ Targeted MPIs versus broad-based MPIs
  - ✓ MaPru in a monetary union

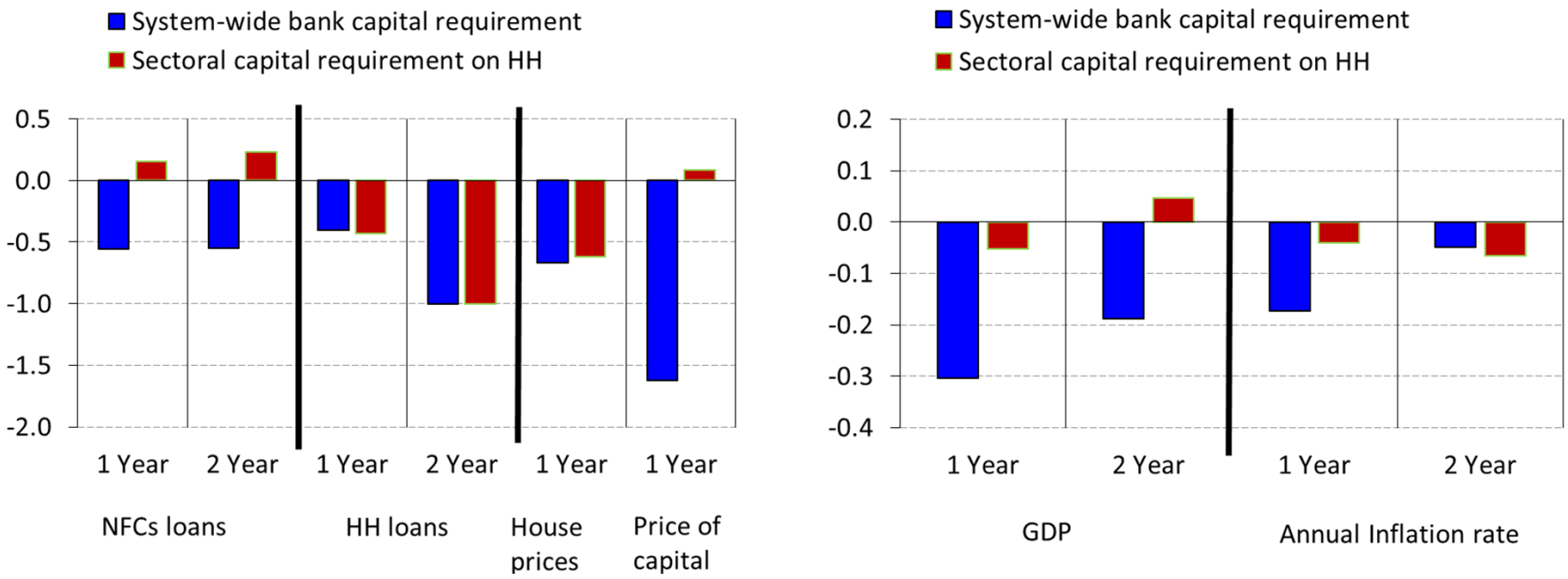
- **Pushing the case for monetary policy**
  - ✓ Monetary policy and crisis mitigation
  - ✓ Non-standard measures in normal and crisis time
  - ✓ MP and MaPru in the New Normal

Aggregate versus sectoral capital requirement

- Macro-prudential instruments (MPI) can have strong aggregate and sectoral implications

Transmission of selected MPIs through credit and asset prices

(percentage point deviation from baseline)



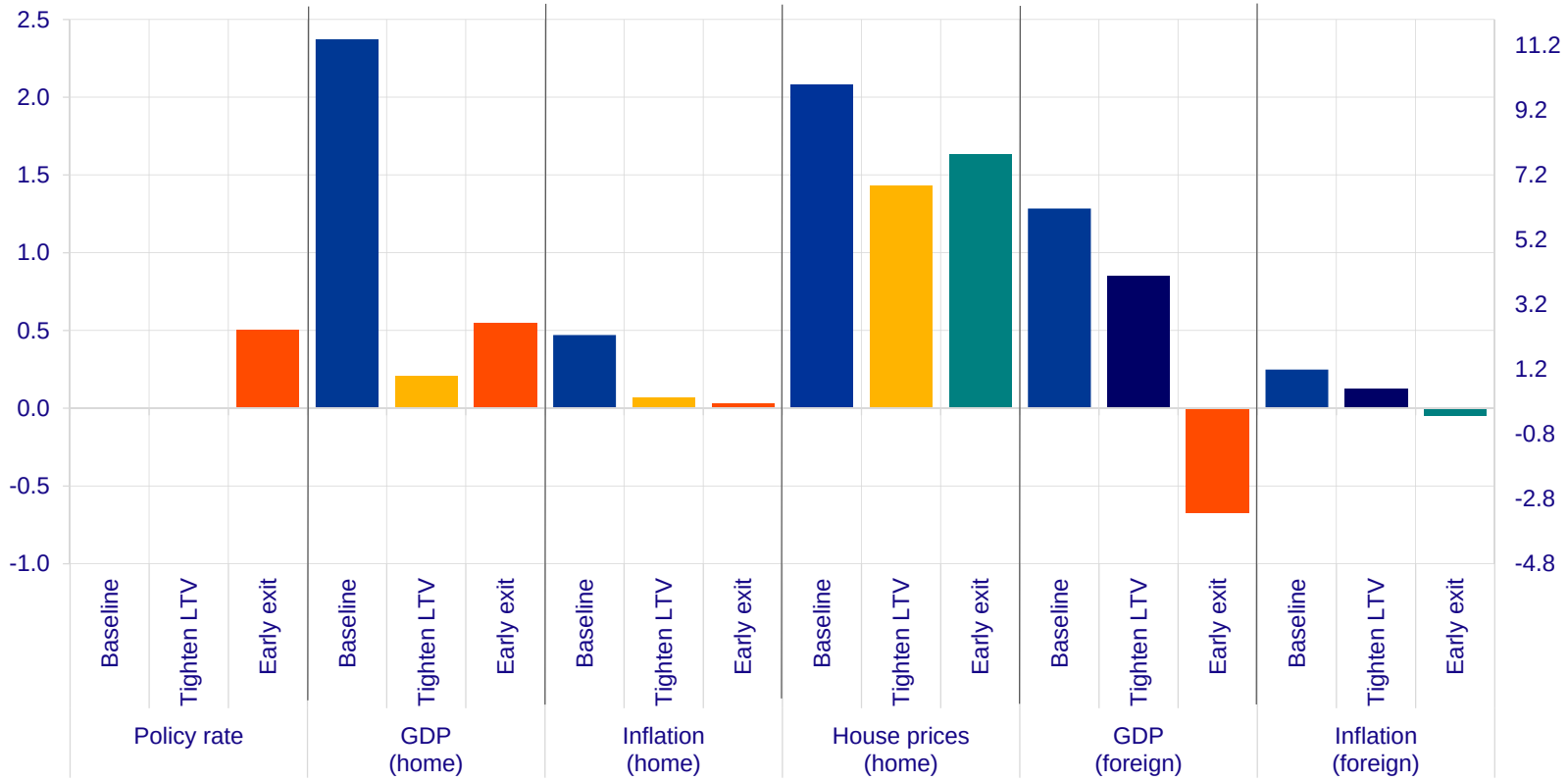
Note: The size of the increase in the capital requirement is normalised so that the impact on loans to households in the second year is -1pp compared to the baseline. House price and Price of capital are in real terms.
Source: Darracq et al (2011) (see, ECB Financial Stability Review, May 2013).

Leaning against the housing boom: MP versus MaPru in the euro area

- Interactions between a single monetary policy and jurisdiction-specific macroprudential policies: evidence from a two-country DSGE model of the euro area

Leaning against house price bubbles: LTV ratio measures versus monetary policy

(real GDP (per cent deviation from baseline, left-hand scale); inflation (percentage point deviation from baseline, left-hand scale), house prices (per cent deviation from baseline, right-hand scale))



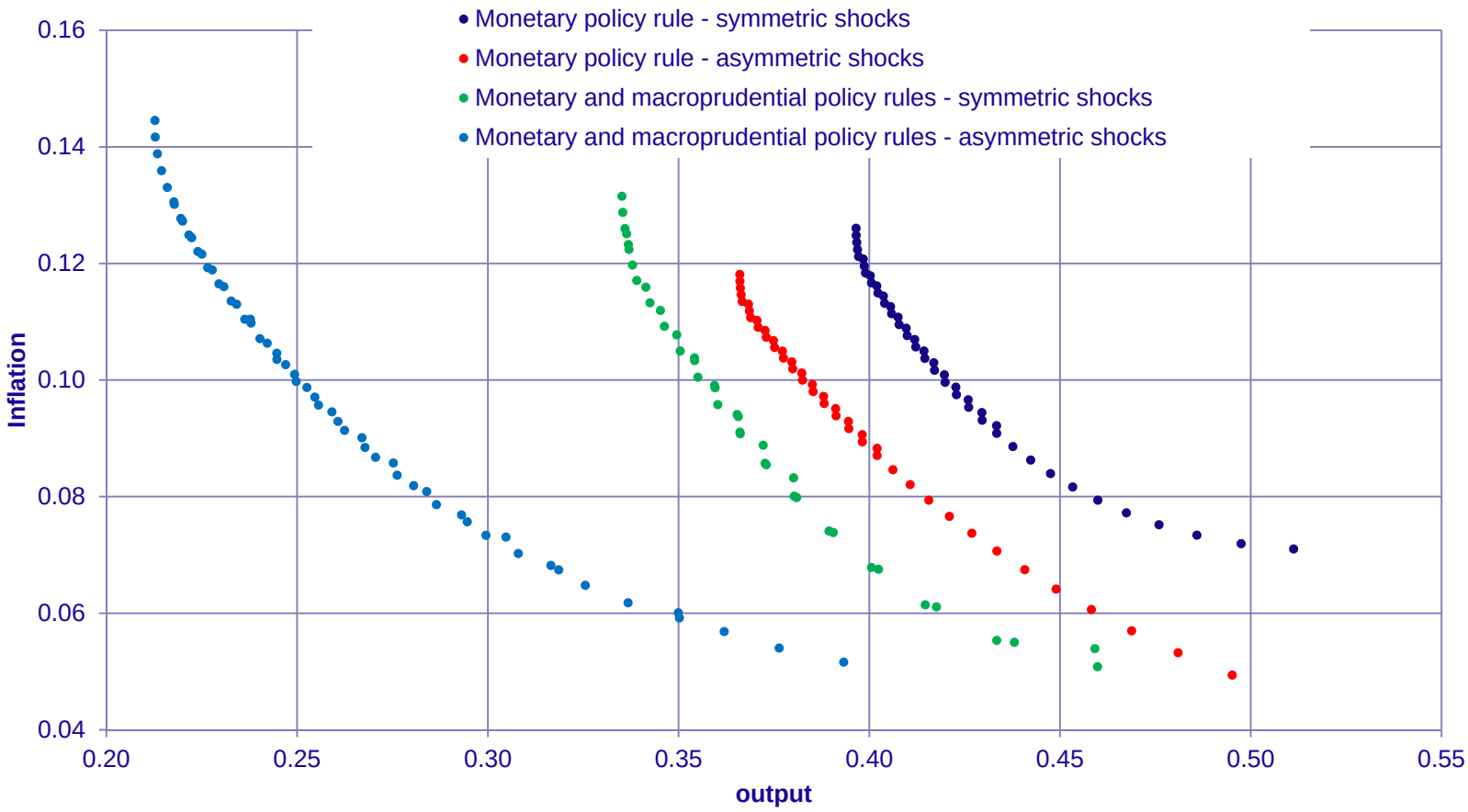
Note: the scenarios all assumes a region-specific gradual rise in housing prices by 10% over a two-year horizon, fueled by positive housing demand factors and loose credit supply conditions on loans for house purchases. In the first scenario, we assume that a countercyclical macroprudential intervention in the booming region through a cap on loan-to-value ratios is introduced while monetary policy is kept constant. In the second scenario, the early exit from the exceptionally loose monetary conditions is proxied by letting the policy rate rise three quarters before the assumption of the baseline scenario.
Source: ECB Financial Stability Review, May 2015, and see Darracq Pariès, Kok, Rancoita (2017), "Cross-border banking, Macroprudential policy and Monetary policy in a monetary union", ECB mimeo

Optimal coordination of MP and MaPru in a monetary union

- Interactions between a single monetary policy and jurisdiction-specific macroprudential policies: evidence from a two-country DSGE model of the euro area

Efficiency frontiers

(in %, standard deviations)



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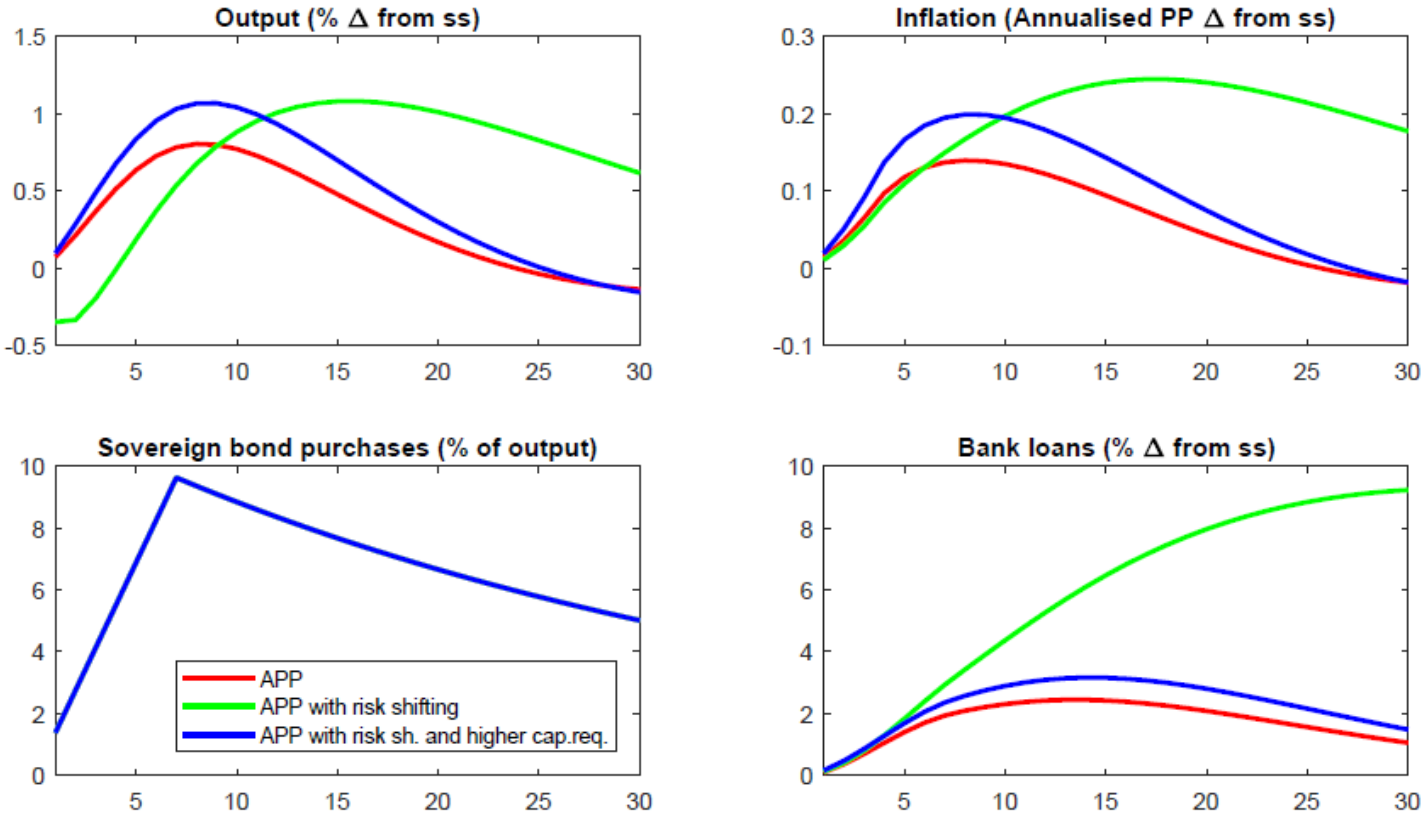
Non-standard monetary policy and macroprudential interventions

- Risk shifting impairs the transmission of APP and leads to higher bank riskiness over the medium-term
- Higher capital requirements can deter risk shifting and restore the "constrained efficient" transmission of Asset Purchase Programme (APP)

APP, Bank risk shifting and bank capital requirements

(APP calibrated in line with the ECB's January 15 announcement)



Source: "Empowering Central Bank Asset Purchases: The Role of Regulatory and Supervisory Policies", by Darracq Pariès and Papadopoulou (2017), Work in Progress

Idiosyncratic risks or multiple banking strategies or both?

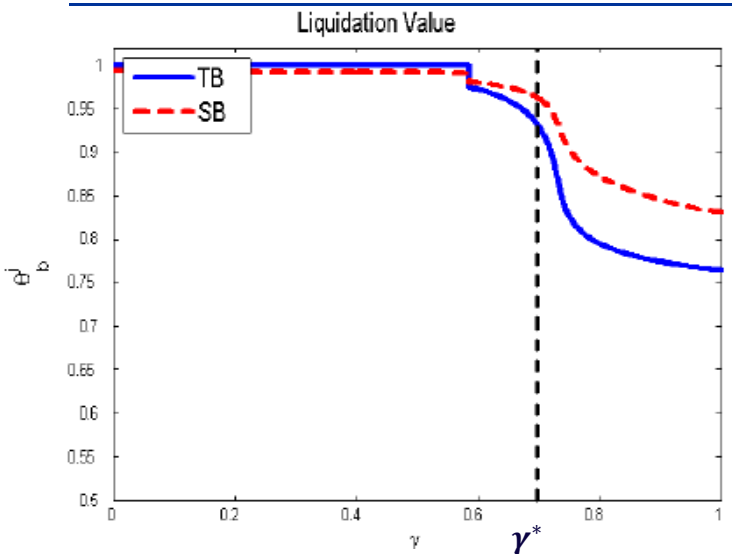
*A General Equilibrium model with endogenous fire-sales and bank-runs exploring the systemic relevance of shadow banks**

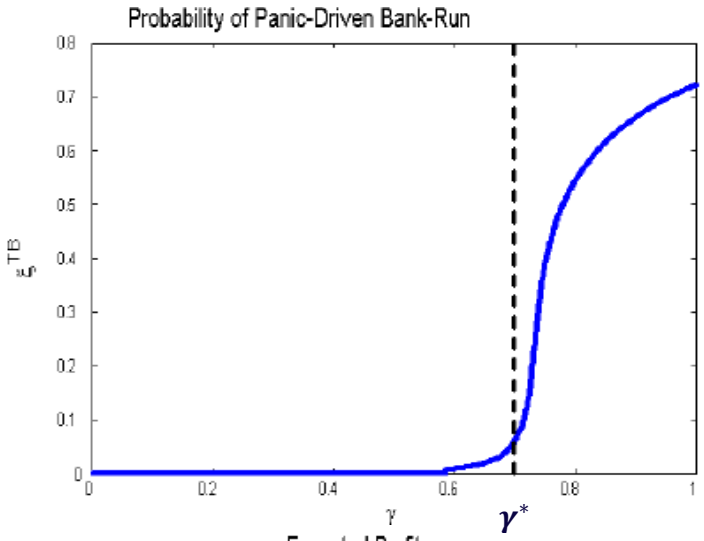
- 3-period model with three assets: one ST liquid asset, two LT assets (safe and risky)
- Two types of bank runs: news driven *versus* panic driven
- Two equilibrium banking strategies with relative size determined by a free entry condition (in the spirit of Hanson et al (2014))
  - ✓ Shadow banking (SB) with high leverage and greater risk-taking, subject to news-driven bank runs
  - ✓ Traditional banking (TB) build more conservative portfolios to avert news-driven bank runs but remain exposed to panic (or self-fulfilling) runs
- SB and TB interactions in secondary markets for LT assets with the possibility of fire sales

**See Ari, Darracq Pariès, Kok and Zochowski (2016) "Shadow Banking in General Equilibrium" ECB working paper 1943*

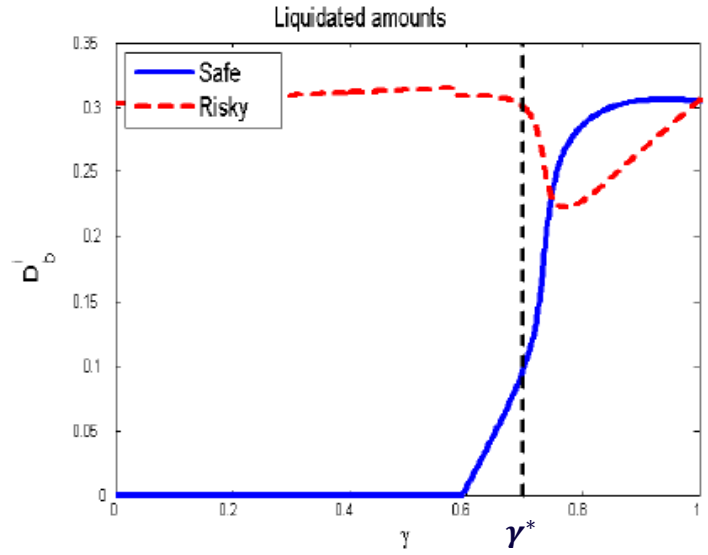
Idiosyncratic liquidity risks or multiple banking strategies or both?

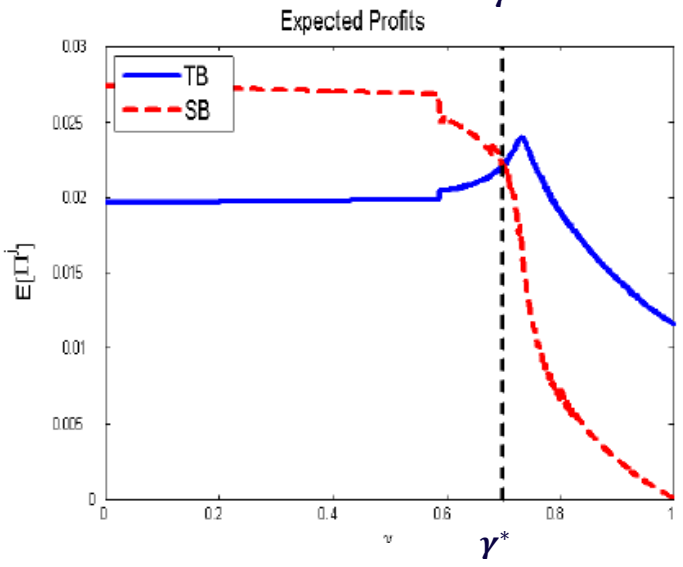
Model solutions after bad news revelations for different values of the shadow banking sector size $\gamma \in [0.1]$





Optimal shadow banking sector size γ^*





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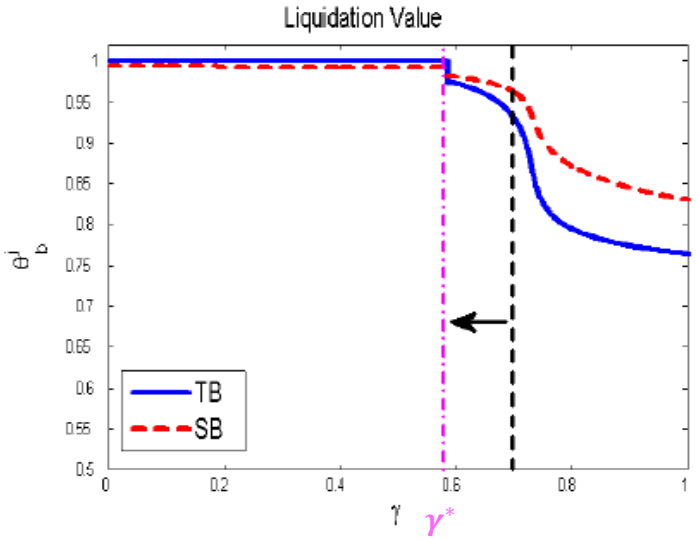
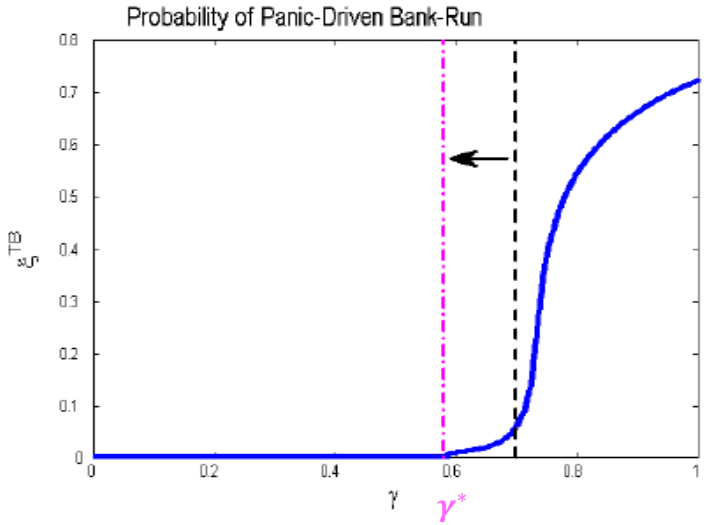
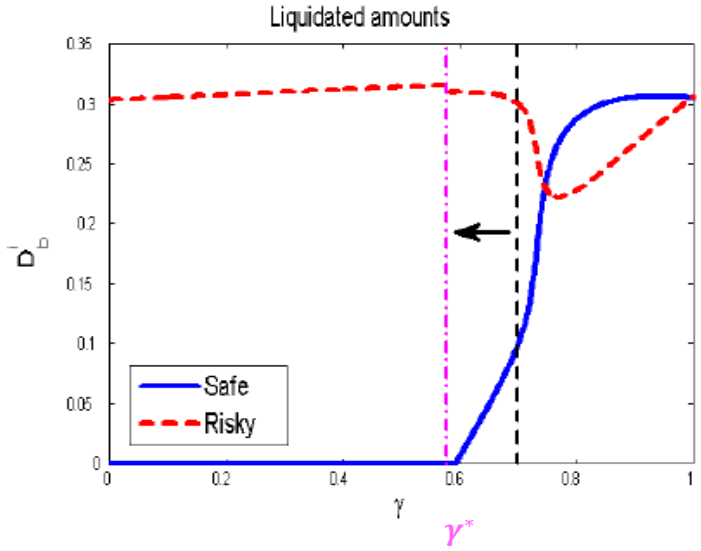
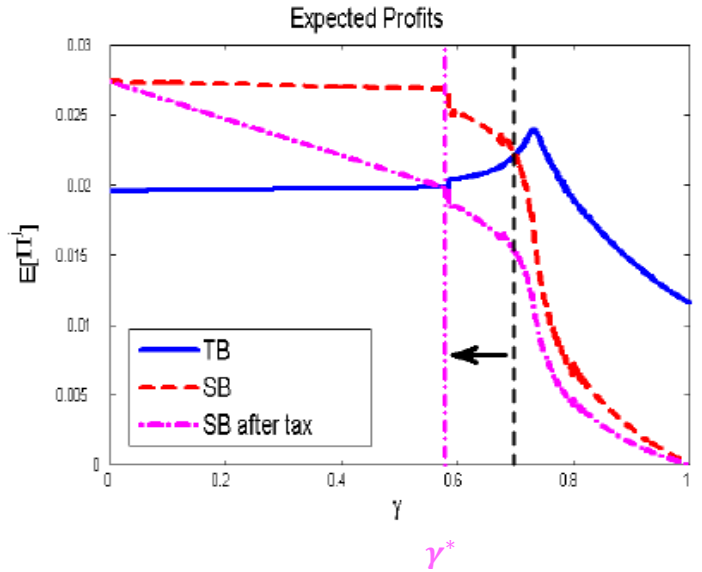




Optimal shadow banking sector size with tax γ^*





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Thank you